# HYDROLOGY

## **PRECIPITATION**

The average annual rainfall is 43.86 inches (Missouri Agricultural Experiment Station 1995).

#### **GAGING STATIONS**

The United States Geological Survey (USGS) has maintained gaging stations and water quality monitoring stations throughout the basin (Figures 2A-F). The following list includes the gaging stations found in the basin with location and period of record listed (USGS 1986, 1987, 1988, 1989, 1991, 1993, 1994, 1995). Numbers 1-3, 10, and 11 are currently operating.

# Gage sites:

- 1) <u>Spring River</u> near Waco, located at lat. 37degrees 14'44", long. 94degrees 33'58", on the line between SE1/4 S7 and NE1/4 S18, T29N, R33W, in Jasper County on the downstream side of the left pier of a county highway bridge, 0.8 miles downstream from Blackberry Creek, 1.5 miles east of Waco, and 47.6 miles upstream from the mouth. Period of record, April 1924 to present.
- 2) Center Creek below Carl Junction, located at lat. 37degrees 09'39", long. 94degrees 34'51", in NE1/4 SE1/4 SE1/4 S12, T28N, R33W, in Jasper County on the downstream end of the left bridge pier on state Highway JJ, 2.4 miles upstream from Spring River, and one mile southwest of Carl Junction. Period of record, April 1993 to present.
- 3) <u>Shoal Creek</u> above Joplin, located at lat. 37degrees 01'23", long. 94degrees 30'58", in SE1/4 NE1/4 S34, T27N, R33W, in Newton County on the right bank 250 feet upstream from the mouth of Spring Creek, 1,400 feet downstream from the bridge on state Highway 86, 0.5 miles south of the city limits of Joplin, and 13.2 miles above the mouth. Period of record, October 1941 to present.
- 4) Center Creek near Carterville, located at lat. 37degrees 08'26", long. 94degrees 22'57", in NW1/4 NW1/4 NW1/4 S24, T28N, R32W, in Jasper County on the downstream side of the right pier of the bridge on State Highway HH, 1.5 miles downstream from Grove Creek, 3.0 miles east of Carterville, and 17.0 miles above the mouth. Period of record, June 1962 to September 1991.
- 5) Stahl Creek near Miller, located at lat. 37degrees 11'40", long. 93degrees 50'40", in SE1/4 S26, T29N, R27W, in Lawrence County, at the bridge on state Highway 39, 1.5 miles south of Miller, and 6.4 miles upstream from the confluence with the Spring River. Period of record, 1950-1976.
- 6) Spring River at La Russell, located at lat. 37degrees 09'13", long. 94degrees 03'21", in SW1/4 SW1/4 S12, T28N, R29W, Lawrence and Jasper county line, on the right bank on the upstream side of Bower Mills bridge, 0.8 miles north of La Russell, and 2.5 miles upstream from Cave Spring Branch. Period of record, 1947-1981.
- 7) Spring River at Carthage, located at lat. 37degrees 11'11", long. 94degrees 18'56", in N1/4 SW1/4 SE1/4 S33, T29N, R31W, on the downstream side of the second pier from left abutment of the Missouri Pacific Railroad bridge in Carthage, and 600 feet downstream from the U.S. Highway 71 bridge. Period of record, 1966-1980.

Table 6. Intermittent streams with permanent pools in the Spring River Basin.

STREAM NAME	COUNTY	TOTAL MILES WITH
		PERMANENT POOLS
Clear Creek	Barry-Newton	3.5
Lateral to Shoal Creek	Barry	5.0
Lateral to Shoal Creek	Barry	3.0
Shoal Creek	<b>Barry-Kansas Line</b>	4.0
<b>South Fork Capps Creek</b>	<b>Barry-Newton</b>	3.0
Blackberry Creek	Barton-Jasper	6.5
Dicks Fork	Barton	2.5
Lateral to Little North Fork	Barton	4.0
Lateral to North Fork Spring River	Barton	0.5
Lateral to Pettis Creek	Barton	0.5
Little North Fork	Barton-Jasper	13.0
Little Spring River	Barton-Jasper	3.5
Muddy River	Barton	0.5
<b>North Fork Spring River</b>	<b>Barton-Jasper</b>	16.5
Pettis Creek	Barton	6.0
Honey Creek	Christian-Lawrence	6.5
Muddy Fork	<b>Dade-Barton</b>	16.5
<b>Buck Branch</b>	Jasper	5.5
Cave Spring Branch	Jasper	1.0
Coon Creek	Jasper-Barton	9.5
<b>Cutoff to North Fork Spring River</b>	Jasper	2.0
Cutoff to North Fork Spring River	Jasper	0.5
Dry Creek	Jasper	9.0
Lateral to Blackberry Creek	Jasper	3.5
Lateral to Coon Creek	Jasper-Barton	2.0
Lateral to North Fork Spring River	Jasper	2.0
Coon Creek	Lawrence-Dade	8.5
Douger Branch	Lawrence	4.5
Dry Fork	Lawrence	2.0
Dry Hollow	Lawrence	0.5
Dry Valley Branch	<b>Lawrence-Newton</b>	1.5
Lateral to North Fork Spring River	Lawrence	0.5
Lateral to North Fork Spring River	Lawrence	1.0
Lateral to Stahl Creek	Lawrence	0.5
Lateral to White Oak Creek	Lawrence	5.0
Lateral to Williams Creek	Lawrence	0.5
Lateral to Williams Creek	Lawrence	0.5
Spring River	Lawrence-Kansas Line	1.5
Stahl Creek	Lawrence	1.5
Truitt Creek	Lawrence	5.0
White Oak Creek	Lawrence-Jasper	11.5
	<b></b>	

Williams Creek	Lawrence	1.5
<b>Elm Spring Branch</b>	Newton	1.0
Hickory Creek	Newton	0.5
Jenkins Creek	<b>Newton-Jasper</b>	2.5
<b>Lateral to Center Creek</b>	Newton	1.5
Lateral to Elm Spring Branch	Newton	0.5
Warren Branch	Newton-Kansas Line	1.5

Source: Funk (1968).

8) Turkey Creek near Joplin, located at lat. 37degrees 07'15", long. 94 degrees 34'55", in NE1/4 SE1/4 S25, T28N, R34W, at the downstream side of the right pier of the bridge on County Highway P, 15 miles upstream from the mouth, and 3 miles northwest of Joplin. Period of record, 1963-1972.

## Water quality sites:

- 9) Center Creek near Smithfield, located at lat. 37degrees 09'20", long. 94degrees 36'10", in NE1/4 SW1/4 NE1/4 S14, T28N, R34W, in Jasper County at the bridge on a county road, one mile south of Smithville, and one mile above the mouth. Period of record, October 1968 to July 1975; July 1977 to June 1989; April 1993 to August 1995.
- 10) Spring River near Waco, located at lat. 37 degrees 14'44", long. 94degrees 33'58", on the line between SE1/4 S7 and NE1/4 S18, T29N, R33W, in Jasper County on the downstream side of the left pier of the county highway bridge, 0.8 miles downstream from Blackberry Creek, 1.5 miles east of Waco, and 47.6 miles upstream from the mouth. Period of record, April 1924 to present.
- 11) Shoal Creek above Joplin, located at lat. 37degrees 01'23", long. 94 degrees 30'58", in SE1/4 NE1/4 S34, T27N, R33W, in Newton County on the right bank 250 feet upstream from the mouth of Spring Creek, 1,400 feet downstream from the bridge on state Highway 86, 0.5 miles south of the city limits of Joplin, and 13.2 miles above the mouth. Period of record, October 1941 to present.
- 12) Center Creek near Carterville, located at lat. 37degrees 08'26", long. 94degrees 22'57", in NW1/4 NW1/4 NW1/4 S24, T28N, R32W, in Jasper County on the downstream side of the right pier of the bridge on state Highway HH, 1.5 miles downstream from Grove Creek, 3.0 miles east of Carterville, and 17.0 miles above the mouth. Period of record, June 1962 to September 1991.
- 13) Spring River near Thayer, located at lat. 36degrees 30'10", long. 91degrees 31'31". Period of record, 1969-1975.
- 14) Turkey Creek near Joplin, located at lat. 37degrees 07'15", long. 94 degrees34'55", in NE1/4 SE1/4 S25, T28N, R34W, at the downstream side of the right pier of the bridge on County Highway P, 15 miles upstream from the mouth, and 3 miles northwest of Joplin. Period of record, 1963-1972.
- 15) Shoal Creek near Galena, Kansas, located at lat. 37degrees 02'31",long. 94degrees 38'34", in SW1/4 NE1/4 NW1/4 S35, T34S, R25E. Period of record, 1968-1975.

#### PERMANENT/INTERMITTENT STREAMS

There are many streams in the watershed which are intermittent for part or all of their reach. The total mileage for intermittent streams with permanent pools is 188 miles. The length of streams with permanent flow is 331 miles (Funk 1968). Mileages for intermittent streams with permanent pools are included in <u>Table 6</u>. Losing stream reaches are listed in <u>Table 7</u> and Figures 4A-F.

### STREAM FLOW

The peak discharge for the gages located on the Spring River at Waco, Center Creek below Carl Junction, and Shoal Creek above Joplin, occurs in May (USGS 1995). The average annual mean discharge for the Spring River location is 945 cubic feet per second (cfs). The highest annual mean for this gage was 3,093 cfs in 1993, and the lowest mean was 61.4 cfs recorded in 1954. The average annual mean discharge for the Center Creek location is 418 cfs, with the lowest mean of 328 cfs recorded in

**Table 7. Losing stream reaches in the Spring River Basin.** 

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STREAM NAME	FIRST COUNTY	SECOND COUNTY	LENGTH	LEGAL START	LEGAL END
	COUNTI	COCIVII	(mi)	(T R S)	(T R S)
Browning Hollow	Barry	Lawrence	3.0	NW,NW,SE 26N 27W 36	SE,SW,NE 26N 26W 20
Clear Creek	Barry		4.0	SE,NE,NW 25N 27W 10	SE,SE,SW 26N 27W 31
<b>Unnamed Trib to Clear Creek</b>	Barry		1.0	SW,NW,SW 25N 28W 1	NE,SE,SW 26N 28W 36
<b>Unnamed Trib to Clear Creek</b>	Barry		1.0	SE,SE,NW 25N 28W 2	SW,SE,NE 26N 28W 35
<b>Unnamed Trib to Clear Creek</b>	Barry		1.0	NW,SE,SE 26N 28W 35	NE,NE,SE 26N 28W 35
<b>Unnamed Trib to Clear Creek</b>	Barry	Lawrence	1.5	NE,SW,SW 26N 28W 34	NW,NW,SE 26N 28W 27
<b>Hudson Creek</b>	Barry		4.0	SW,SW,SE 25N 28W 13	SW,NW,NW 25N 28W 16
Kelly Creek	Barry		5.0	SE,SE,SW 25N 27W 2	SW,SE,SW 26N 27W 31
South Fork of Capps Creek	Barry		5.0	SW,SW,SW 24N 28W 3	SE,SE,NW 25N 28W 21
South Indian Creek	Barry	Newton	2.4	NW,SE,NE 24N 29W 33	NW,NW,SE 24N 29W 31
<b>Spring River</b>	Barry	Lawrence	4.0	SE,NW,SE 26N 26W 36	SE,SW,NE 26N 26W 20
Unnamed Trib to Spring River	Barry	Lawrence	1.0	NE,NE,SW 26N 26W 35	NW,SE,SW 26N 26W 26
Unnamed Trib to Shoal Creek	Barry		2.5	NW,SE,NE 24N 28W 10	NW,SW,NW 24N 28W 16
Fidelity Branch	Jasper		3.5	SW,SE,SW 27N 31W 15	NE,NW,NE 27N 31W 3
Grove Creek	Jasper		1.5	NE,SW,NE 27N 32W 11	NW,SE,NW 27N 32W 1
<b>Unnamed Trib to Center Creek</b>	Jasper		2.5	SW,SE,NW 28N 33W 23	NW,NW,SW 28N 33W 10
<b>Unnamed Trib to Jenkins Creek</b>	Jasper		1.8	SW,SW,SW 27N 30W 5	SE,NE,SW 27N 30W 7
<b>Unnamed Trib to Motley Branch</b>	Jasper		0.8	SW,NW,NW 27N 30W 12	SW,NW,NW 27N 30W 12
Short Creek	Jasper		1.5	NW,NE,NE 27N 34W 12	NW,NW,SW 27N 34W 2
<b>Unnamed Trib to Short Creek</b>	Jasper		3.0	NE,NE,SW 27N 33W 18	SE,SE,SW 27N 34W 2
<b>Browning Hollow</b>	Lawrence		5.0	SE,SW,SE 27N 26W 34	SW,SW,NW 27N 26W 30
<b>Unnamed Trib to Browning Hol</b>	Lawrence		1.3	NW,SW,SW 27N 26W 33	SE,NW,SE 27N 26W 29
<b>Unnamed Trib to Browning Hol</b>	Lawrence		1.0	NE,NE,SE 26N 26W 4	SW,NE,SE 27N 26W 33
<b>Unnamed Trib to Browning Hol</b>	Lawrence		0.5	SE,NE,NW 26N 26W 3	SE,NE,SE 27N 26W 33
<b>Unnamed Trib to Browning Hol</b>	Lawrence		1.0	SE,NW,SE 27N 26W 28	SW,NW,SW 27N 26W 28
<b>Unnamed Trib to Borwning Hol</b>	Lawrence		0.5	SW,SW,SW 27N 26W 27	SW,NW,SE 27N 26W 28
Douger Branch	Lawrence		2.5	NW,NE,SW 26N 26W 11	NW,NW,SW 26N 26W 9
Unnamed Trib to Douger	Lawrence		1.0	SW,SW,SE 26N 26W 10	NW,NE,SE 26N 26W 9
Branch				, ,	, ,
Unnamed Trib to Douger Branch	Lawrence		0.8	NW,SE,NW 26N 26W 10	SE,SW,NE 26N 26W 9
Unnamed Trib to Douger	Lawrence		0.8	NW,SW,SE 26N 26W 3	NW,NW,SE 26N 26W 10
Branch Unnamed Trib to Douger	Lawrence		0.8	SE,NE,SE 26N 26W 3	NW,NW,SE 26N 26W 11
Branch					
Unnamed Trib to Douger Branch	Lawrence		0.5	SW,NE,NW 26N 26W 11	NW,NE,SW 26N 26W 11
Dry Hollow	Lawrence		8.0	SW,SE,NW 27N 28W 24	NE,SW,SW 28N 28W 15
<b>Unnamed Trib to Dry Hollow</b>	Lawrence		0.8	SE,SE,NW 27N 28W 2	SE,NE,NE 27N 28W 2
<b>Unnamed Trib to Dry Hollow</b>	Lawrence		0.8	SW,NW,SW 27N 28W 11	NW,SW,NE 27N 28W 11
<b>Unnamed Trib to Dry Hollow</b>	Lawrence		0.5	NE,NW,NE 27N 28W 14	SE,NE,SW 27N 28W 11
Hillhouse Branch	Lawrence		3.0	NE,NE,NE 26N 27W 15	SW,SE,SE 27N 27W 36
<b>Unnamed Trib to Hillhouse Cr</b>	Lawrence		0.5	NE,SE,SW 26N 27W 11	NE,SW,NW 26N 27W 11
<b>Unnamed Trib to Hillhouse Cr</b>	Lawrence		0.5	SW,SE,SW 26N 27W 10	SW,SW,NW 26N 27W 11
<b>Unnamed Trib to Hillhouse Cr</b>	Lawrence		0.5	SW,SW,NW 26N 27W 2	SE,NE,SW 26N 27W 2
<b>Unnamed Trib to Hillhouse Cr</b>	Lawrence		1.0	NW,NW,NW 26N 27W 2	SE,SW,NW 26N 27W 1
Honey Creek	Lawrence		9.0	NE,NE,SE 27N 26W 13	NW,NE,SE 27N 27W 3
Unnamed Trib to Honey Creek	Lawrence		2.8	NE,NE,SW 27N 25W 5	NE,NE,SE 27N 26W 13
Unnamed Trib to Honey Creek	Lawrence		0.3	SW,NW,SW 27N 26W 9	SW,SE,SW 27N 26W 9
<b>Unnamed Trib to Honey Creek</b>	Lawrence		1.8	SW,SW,NE 27N 26W 4	NE,SE,SW 27N 26W 9
<b>Unnamed Trib to Honey Creek</b>	Lawrence		0.5	SW,NE,SW 27N 26W 12	SW,SE,SE 27N 26W 12
<b>Unnamed Trib to Honey Creek</b>	Lawrence		3.0	SE,SE,NW 27N 26W 3	NW,SE,SW 27N 26W 16
<b>Unnamed Trib to Honey Creek</b>	Lawrence		1.0	SW,SE,SW 27N 25W 4	SE,SW,NE 27N 25W 17
Unnamed Trib to Honey Creek	Lawrence		1.5	NE,NW,NW 27N 25W 9	SE,SW,NE 27N 25W 17
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<b>Unnamed Trib to Honey Creek</b>	Lawrence		1.5	NW,NE,NE 27N 26W 12	NE,NW,SE 27N 26W 13
STREAM NAME	FIRST	SECOND	LENGTH	LEGAL START	LEGAL END
	COUNTY	COUNTY	(mi)	(TRS)	(T R S)
Unammed Trib to Honey Creek	Lawrence		1.0	NW,NW,NE 27N 25W 33	SW,NW,NE 27N 25W 28
Hewlett Branch	Lawrence		4.5	NW,SW,SE 26N 27W 18	SW,SW,SW 27N 28W 25
Unnamed Trib to Hewlett Br	Lawrence		1.5	NW,SW,NE 26N 27W 7	SW,SW,NE 26N 28W 1
Unnamed Trib to Hewlett Br	Lawrence		1.3	SW,NE,SW 26N 27W 6	NE,NE,NW 26N 28W 1
Pruitt Branch	Lawrence		3.0	SE,NE,SW 26N 28W 11	NE,SW,SW 27N 28W 26
Unnamed Trib to Spring River	Lawrence		1.5	NE,NE,SW 27N 27W 21	SW,NW,NW 27N 27W 16
Unnamed Trib to Spring River	Lawrence		1.0	NE,NW,SW 27N 27W 21	NE,SE,SW 27N 27W 17
Unnamed Trib to Spring River	Lawrence		0.8	NW,SE,SE 27N 27W 20	SE,SE,NW 27N 27W 20
Unnamed Trib to Spring River	Lawrence		1.0	NW,SW,NE 27N 27W 19	SE,NE,NW 27N 27W 20
Unnamed Trib to Spring River	Lawrence		1.0	SW,NW,SE 27N 27W 18	NE,SE,SW 27N 27W 17
Unnamed Trib to Spring River	Lawrence		1.3	NE,NW,SW 27N 27W 8	SW,NE,SE 27N 27W 5
Unnamed Trib to Spring River	Lawrence		0.8	NW,SE,SW 27N 27W 5	NW,NE,SE 27N 27W 5
Unnamed Trib to Spring River	Lawrence		1.0	SW,NW,SW 27N 27W 5	SW,NE,NE 27N 27W 5
Unnamed Trib to Spring River	Lawrence		1.0	SW,NW,NW 27N 27W 5	NW,NE,SE 28N 27W 32
Unnamed Trib to Spring River	Lawrence		0.5	SE,NW,SW 28N 27W 32	NW,SW,SE 28N 27W 32
Unnamed Trib to Spring River	Lawrence		0.8	NE,SW,NW 28N 27W 32	NW,SE,NE 28N 27W 32
Unnamed Trib to Spring River	Lawrence		0.3	SW,NE,SW 28N 27W 33	NW,SE,SE 28N 27W 32
Unnamed Trib to Spring River	Lawrence		0.5	SE,SE,SE 26N 26W 5	SE,SE,SW 26N 26W 5
Unnamed Trib to Spring River	Lawrence		6.5	NE,NW,SE 27N 27W 29	SE,NE,SE 28N 27W 29
Unnamed Trib to Spring River	Lawrence		2.5	SW,SW,SW 26N 26W 18	SE,SE,SW 26N 26W 5
Unnamed Trib to Stahl Creek	Lawrence		1.3	NE,NE,SW 29N 27W 24	SE,SW,NW 29N 27W 25
Unnamed Trib to Clear Creek	Lawrence		0.4	SE,SE,SE 26N 28W 27	NE,NE,SE 26N 28W 27
Unnamed Trib to Clear Creek	Lawrence		0.2	SE,NW,SW 26N 27W 30	NW,SW,SW 26N 27W 30
Unnamed Trib to Clear Creek	Lawrence	Barry	4.3	SE,NE,SE 26N 27W 20	SW,NW,NE 26N 28W 35
Five Mile Creek	Newton		2.0	NW,NE,NW 26N 33W 34	NW,NE,NW 26N 33W 28
Unnamed Trib to Five Mile Cr	Newton		2.6	SW,SE,NE 26N 34W 12	NW,NE,SE 26N 33W 5
Jones Creek	Newton	Jasper	4.0	NW,SW,NW 27N 31W 24	NE,NW,SE 27N 31W 2
Spring Creek	Newton		2.0	SE,NE,SW 26N 33W 4	SW,NE,SE 27N 33W 34
Unnamed Trib to Hickory Creek	Newton		2.0	SE,SW,SE 24N 32W 3	SW,SW,NE 25N 31W 30
<b>Unnamed Trib to Shoal Creek</b>	Newton		3.7	NW,SE,NE 27N 32W 21	<b>CENTER 27N 32W 31</b>
				, ,	

3.3

NE,SE,NW 27N 32W 27

Source: Duchrow (1991).

**Unnamed Trib to Shoal Creek** 

Newton

NW,SE,SE 27N 32W 30

1994. The highest annual mean for this location was 508 cfs in 1995. The average annual mean discharge for the Shoal Creek station is 431 cfs. The highest mean for this location was 1,221 cfs in 1993, and the lowest recorded annual mean was 77.8 cfs in 1954.

The 7-day Q2 and Q10 values represent the relative permanence of a stream. The 7-day low flow discharges, with recurrence intervals of two years (Q2) and ten years (Q10), for locations throughout the basin are found in Table 8.

### DAMS AND HYDROPOWER INFLUENCES

There are three impoundments in the watershed with surface areas greater than 50 acres. Only one, the Joplin Water Supply Lake (Shoal Creek), impounds a major stream. Maximum water withdrawl at this site is 14 cfs, and the dam completely impounds the stream in periods of drought or low flow (MDNR 1984). Blackberry Hay Farm Lake impounds a portion of Pond Creek in Jasper County and is under private ownership. Lamar City Lake is used for Lamar city water supply and recreation. It is located in Barton County and impounds an unnamed tributary (MDNR 1984).

Table 8. Seven-day low flow discharges (cfs) with recurrence intervals of two years (Q2) and ten years (Q10) for the Spring River Basin.

STREAM	LOCATION	PERIOD OF	<b>7-DAY Q2</b>	7-DAY
		RECORD		Q10
Big Spring	Mt. Vernon	1925-66	16.0	9.0
Big Spring	Neosho	1925-64	1.2	
<b>Boy Scout Camp Spring</b>	Joplin	1964-65	0.6	
Brickhouse Spring	Neosho	1959-64	1.3	
Capps Creek	Berwick	1962-70	20.0	11.0
Center Creek	<b>Carl Junction</b>	1943-70	35.0	13.0
Center Creek	Carterville	1962-91	26.0	9.4
Center Creek	Fidelity	1962-70	22.0	7.6
<b>Center Creek</b>	Sarcoxie	1954-67	16.0	6.8
Center Creek	Webb City	1962-66	32.0	10.0
Clarkson Spring	Pierce City	1941-66	<b>7.</b> 5	
Clear Creek	Richey	1953-67	7.0	2.2
Elm Spring	Neosho	1959-61	0.4	
Hickory Creek	Neosho	1941-70	9.8	3.9
McMahon Spring	Neosho	1943-64	1.0	
North Fork	Lamar	1943-63	0.1	0
North Fork	Galesburg	1947-64	4.7	2.0
Shoal Creek	Fairview	1954-67	17.0	7.0
Shoal Creek	Joplin	1941-91	92.0	35.0
Shoal Creek	Neosho	1941-67	60.0	23.0
Shoal Creek	Richey	1945-70	<b>54.0</b>	20.0
<b>Spring River</b>	Carthage	1951-80	50.0	19.0
<b>Spring River</b>	La Russell	1957-81	47.0	20.0
<b>Spring River</b>	<b>Neck City</b>	1954-64	51.0	
<b>Spring River</b>	<b>Stotts City</b>	1943-67	42.0	19.0
<b>Spring River</b>	Verona	1953-64	5.0	3.2
<b>Spring River</b>	Waco	1924-92	53.0	18.0
Stahl Creek	Miller	1952-72	0	0
<b>Ozark Trout Farm Spring</b>	Neosho	1954-65	1.4	0.9
Williams Creek	Mt. Vernon	1954-67	4.7	2.0

Source: MDNR (1996b).